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# THE FARM INDEX

ECONOMIC RESEARCH SERVICE • U. S. DEPARTMENT OF AGRICULTURE

December 1963

TRI-AGENCY READING ROOM

MAY 26 1972

500 12th St., SW. Room 505  
Washington, D. C. 20250

**feed  
Rx:  
concentrate**

*Also  
in this issue:*

*Freeze  
-Dried Assets*

*INDIA:  
Progress is Knowing How*

# ECONOMIC TRENDS

Item	Unit or base period	'57-'59 Average	1962		1963		
			Year	October	August	September	October
<b>Prices:</b>							
Prices received by farmers	1910-14=100	242	243	245	242	241	241
Crops	1910-14=100	223	230	227	234	232	234
Livestock and products	1910-14=100	258	255	262	249	249	247
Prices paid, interest, taxes and wage rates	1910-14=100	292	306	307	311	311	311
Family living items	1910-14=100	286	294	295	298	297	297
Production items	1910-14=100	262	269	271	273	273	272
Parity ratio		83	79	80	78	77	77
Wholesale prices, all commodities	1957-59=100	.....	100.6	100.6	100.4	100.3	100.5
Commodities other than farm and food	1957-59=100	.....	100.8	100.7	100.8	100.7	100.9
Farm products	1957-59=100	.....	97.7	98.7	96.3	95.5	95.1
Food, processed	1957-59=100	.....	101.2	101.5	100.9	100.9	102.2
Consumer price index, all items	1957-59=100	.....	105.4	106.0	107.1	107.1	.....
Food	1957-59=100	.....	103.6	104.3	106.0	105.4	.....
<b>Farm Food Market Basket:<sup>1</sup></b>							
Retail cost	Dollars	1,037	1,067	1,075	1,090	1,082	.....
Farm value	Dollars	410	410	411	397	390	.....
Farm-retail spread	Dollars	627	657	664	693	692	.....
Farmers' share of retail cost	Per cent	40	38	38	36	36	.....
<b>Farm Income:</b>							
Volume of farm marketings	1947-49=100	123	136	204	138	157	205
Cash receipts from farm marketings	Million dollars	32,247	35,921	4,496	2,928	3,466	4,500
Crops	Million dollars	13,766	15,935	2,375	1,279	1,785	2,500
Livestock and products	Million dollars	18,481	19,986	2,121	1,649	1,681	2,000
Realized gross income <sup>2</sup>	Billion dollars	.....	40.8	.....	.....	41.1	.....
Farm production expenses <sup>2</sup>	Billion dollars	.....	28.2	.....	.....	28.9	.....
Realized net income <sup>2</sup>	Billion dollars	.....	12.6	.....	.....	12.2	.....
<b>Agricultural Trade:</b>							
Agricultural exports	Million dollars	4,105	5,031	389	408	433	.....
Agricultural imports	Million dollars	3,977	3,876	332	347	.....	.....
<b>Land Values:</b>							
Average value per acre	1957-59=100	.....	.....	120 <sup>3</sup>	127 <sup>3</sup>	.....	.....
Total value of farm real estate	Billion dollars	.....	.....	139.5 <sup>3</sup>	148.1 <sup>3</sup>	.....	.....
<b>Gross National Product<sup>2</sup></b>							
Consumption <sup>2</sup>	Billion dollars	456.7	554.9	556.8	.....	588.5	.....
Investment <sup>2</sup>	Billion dollars	297.3	355.4	356.7	.....	374.3	.....
Government expenditures <sup>2</sup>	Billion dollars	65.1	78.8	78.9	.....	83.9	.....
Net exports <sup>2</sup>	Billion dollars	92.4	117.0	117.0	.....	126.0	.....
	Billion dollars	1.8	3.8	4.1	.....	4.3	.....
<b>Income and Spending:</b>							
Personal income, annual rate	Billion dollars	.....	442.1	447.7	467.3	466.4	470.3
Total retail sales <sup>1</sup>	Million dollars	.....	19,613	19,875	20,666	20,385	20,861
Retail sales of food group <sup>1</sup>	Million dollars	.....	4,801	4,881	4,996	4,931	.....
<b>Employment and Wages <sup>1</sup></b>							
Total civilian employment	Millions	.....	67.8	68.1	68.9	69.1	69.1
Agricultural	Millions	.....	5.2	5.0	4.8	4.9	4.9
Rate of unemployment	Per cent	.....	5.6	5.3	5.5	5.6	5.5
Workweek in manufacturing	Hours	.....	40.4	40.2	40.3	40.7	40.7
Hourly earnings in manufacturing, unadjusted	Dollars	.....	2.39	2.39	2.43	2.47	2.47
Industrial Production <sup>1</sup>	1957-59=100	.....	118	119	126	126	127
<b>Manufacturers' Sales and Inventories:</b>							
Total sales, monthly rate <sup>1</sup>	Million dollars	.....	33,260	33,480	35,320	35,430	.....
Total inventories	Million dollars	.....	57,210	57,270	59,040	59,070	.....
Total new orders, monthly rate	Million dollars	.....	33,050	33,820	35,100	36,000	.....

<sup>1</sup> Average annual quantities of farm food products based on purchases per wage-earner or clerical-worker family in 1952—estimated monthly. <sup>2</sup> Annual rates seasonally adjusted third quarter. <sup>3</sup> As of July 1. <sup>4</sup> Seasonally adjusted.

Sources: U.S. Department of Agriculture (Farm Income Situation, Market-

ing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Department of Commerce (Industry Survey, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Department of Labor (The Labor Force and Wholesale Price Index).



# THE AGRICULTURAL OUTLOOK

Domestic and foreign markets for farm products expanded in 1963, resulting in increased marketings of farm products at prices little changed from a year earlier. The index of prices received by farmers for all products averaged a shade below a year ago with lower prices received for livestock and products more than offsetting higher prices for crops.

Prices paid by farmers this year for family living items, production goods, taxes, interest and wages are about 2 per cent above 1962. Total expenses of producing farm products are higher by about the same amount.

Farm output, according to November indications, is up nearly 2 per cent from 1962. The rise is generally distributed through both crop and livestock sectors. Crop output this year is at a record high level, reflecting a larger acreage for harvest and higher yields compared to 1962. The net effect of drought in some areas was not serious in relation to the total crop.

Food expenditures in 1963 are about 3 per cent greater than in 1962, reflecting increased population, growing purchasing power per person, larger

consumption per capita and higher retail prices. Consumer income after taxes is about 4.5 per cent higher than a year earlier.

The general level of business activity this year is up about 5 per cent with increases in consumer demand, business investment and government purchases. The higher level of production resulted in employment of an additional 1 million workers. However, the increase in population and larger labor force resulted in a rate of unemployment near the 1962 level.

## COMMODITY HIGHLIGHTS

Disappearance of cotton during the current season is estimated at 13.8 million bales, up about 2 million from a year earlier. Both mill consumption and exports are expected to be larger.

Due to the large crop in 1963, total carryover into 1964-65 likely will be up despite the increase in disappearance. Production was high this year because of the record yield of 516 pounds per acre, up 59 pounds from 1962. Total output of cotton this year was estimated at 15.3 million bales as of November 1.

The average consumer will eat about 170 pounds of beef, veal, pork, lamb and mutton in 1963, almost six pounds more than in 1962. The increase is due primarily to large use of beef—about 95 pounds per person compared with 89.1 a year ago. Use of pork will average about 65 pounds per person, up about a pound from 1962, but combined consumption of veal, lamb and mutton will be down about a pound.

The number of cattle on farms and ranches January 1, 1964, will set a new record. This inventory will be the source of greater beef supplies during 1964. Cattle slaughter is expected to continue at least through the first part of the coming year. Prices are expected to remain near current levels as long as the supply of fed cattle is large. Beef production is up even more than slaughter because cattle are being marketed at unusually heavy weights.

Pork supplies next year are expected to be down some from 1963. Hog slaughter likely will dip

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The Farm INDEX is published monthly by the Economic Research Service, U.S. Department of Agriculture. December 1963. Vol. II, No. 12.

The contents of this magazine are based largely on research of the Economic Research Service and on material developed in cooperation with state agricultural experiment stations. All articles may be reprinted without permission. For information about the contents, write the editor, The Farm INDEX, Office of Management Services, U.S. Department of Agriculture, Washington, D.C. 20250.

Use of funds for printing this publication approved by the Director of the Bureau of the Budget, May 24, 1962. Subscription orders should be sent to the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Price 20 cents (single copy). Subscription price: \$2.00 per year; 75 cents additional for foreign mailing.

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below year earlier levels before the second quarter and remain there the rest of the year. Hog prices are currently under pressure from abundant beef supplies and unusually large stocks of pork in cold storage.

Total supplies of edible **fats, oils and oilseeds** for the 1963-64 marketing year, starting October 1, 1963, are placed at around 17 billion pounds (oil basis), almost 3 per cent above last season. The increase is due mainly to large starting stocks of edible vegetable oils and the record 1963 soybean crop.

Domestic disappearance of edible fats and oils is expected to be record high in 1963-64 due to the increase in population. Nevertheless, the remaining quantities of cottonseed and soybean oils, lard, butter and soybeans available for export and carry-out stocks in 1963-64 also will be at a new high of around 7.6 billion pounds (including oil equivalent of soybeans), about 4 per cent over 1962-63.

Exports of edible fats and oils (including oil equivalent of soybeans) during the current marketing year may total around 4.9 billion pounds, roughly 15 per cent more than the 4.3 billion shipped in 1962-63 and approximately one-third of the output of these commodities.

Due to favorable domestic and export demand, prices of food fats and oils are expected to remain strong throughout 1963-64, averaging somewhat above 1962-63 levels.

The total supply of **feed grains** for 1963-64 is estimated at 216 million tons on the basis of November indications. This is slightly larger than last year. The feed grain carryover into 1963-64 was 9 million tons less than a year earlier; but the decrease was more than offset by an increase in 1963 production. This year's crop of 153 million tons is second only to 1960's record, but is expected to be a little below total utilization. A reduction in carryover of about 3 million tons is in prospect during 1963-64 from the 62.5 million tons in 1962-63.

Domestic use of feed grains in 1963-64 is expected to increase a little from the current level, principally because of increased cattle feeding. Feed grain exports are expected to continue heavy although they may fall slightly below the high level of the past two years.

Exports of **wheat** continue to run well above

year ago levels. Heavy buying by Western Europe and Japan are primarily responsible. The average price received by farmers for wheat in mid-October was \$1.94 per bushel (not including the 18 cents per bushel payment to farmers participating in the 1963 wheat program). In October 1962 farmers received \$1.97 per bushel.

Supplies of canned and frozen **vegetables** available into mid-1964 probably will be only a little smaller than the heavy supplies of a year earlier. Potato supplies for fall and winter markets are slightly above last year and prices are likely to average close to 1962-63 levels.

Supplies of fresh apples, cranberries and citrus **fruits**—including tangerines and tangelos—are expected to be plentiful for the Christmas holiday season. Dried fruits, especially raisins, and edible tree nuts should be in larger supply than a year ago. Prospective supplies of most canned and frozen fruits and juices are smaller.

Prices for most fresh and processed fruits at all levels of sale probably will be at or above a year earlier.

World **wool** consumption and production will be about in balance during the 1963-64 marketing year and supplies from exporting countries are expected to move at relatively high prices.

**Egg** production in 1963 is estimated at 176 million cases, slightly above 1962. A further small rise is in prospect for next year, mostly during the first half. Egg prices early in 1964 likely will be below a year earlier.


**Broiler** production in 1963 will be up about 4 per cent from 1962. Output in 1964 is likely to show another gain, especially after mid-year.

The **turkey** crop this year is currently placed at 93 million birds, up slightly from 1962. Next year's crop is expected to be somewhat larger.

**Milk** production was reported at 9.5 billion pounds in October, down 2 per cent from 1962. Butter production in October was about 14 per cent below year earlier levels, while American cheese output was about 5 per cent higher.

Sales of whole milk in order markets are about 2 per cent over last year. Retail prices for dairy products are averaging about the same as 1962 levels.





# feed **R** concentrate **X:**

Meat, milk, poultry and eggs. Their common denominator is feed.

As livestock production has gone up, the quantity of feed used has also increased. Feed used for livestock in 1962 included 158.6 million tons of concentrates and 230 million tons of harvested forage.

Besides the increase in quantity of livestock and feed, other changes have occurred in the feeding industry since the 1940s. For one, more emphasis has been placed on well balanced, high energy rations. From 1950 to 1962, the consumption of high protein feeds rose 47 per cent. Nearly half of the increase was due to an upswing in production and feeding of soybean meal. The use of grain and byproduct feeds increased 28 per cent.

Reflecting the emphasis on concentrates in dairy rations, the average quantity of concentrates fed to milk cows went from 1,317

pounds per head in 1940 to 2,750 pounds in 1962—an increase of 109 per cent. The effect of improved rations is obvious. Milk production per cow rose from 4,622 pounds in 1940 to 7,370 pounds in 1962—a change of 59 per cent.

Another development in feeding has been the rapid expansion in output and consumption of hybrid grain sorghum. Use of sorghum grains for feed in 1956 stood at 4.8 million tons. A year later, 7.5 million tons were fed. By 1962, more than 12 million tons of sorghum grains were used for livestock, about a ton for every eight tons of corn fed. The ready supply of large quantities of sorghum grains in the Southwest and on the West Coast has been a factor in the growth in cattle feeding in these areas.

From 1955 to 1962, the feed-livestock price ratios were relatively favorable. As a result, farmers increased the average

market weights of animals. The average live weight per head of cattle slaughtered under federal inspection was 958 pounds in 1954 compared to 1,027 pounds in 1962. The average weight of barrows and gilts at eight markets was 222 pounds in 1956 and 231 pounds in 1962.

Changes in feeding also show up in the proportion of total feed going to different kinds of livestock. In 1940-44, dairy cattle received the leading share, 29.9 per cent, of all feed including pasture. Beef cattle claimed only 22.6 per cent.

By 1955-59, the shares were reversed and beef cattle got 34.9 per cent of total feed with dairy animals receiving 28.2 per cent. Between the two periods, poultry got a little more of the total feed supply while the share going to hogs was reduced slightly. Feed for horses and mules and sheep and goats declined more than that for other animals. (1)



PRODUCTION OF MOST LIVESTOCK PRODUCTS RISING

Year (beginning October 1)	Cattle and calves	Hogs	Sheep and lambs	All poultry <sup>1</sup>	Milk production	Eggs <sup>2</sup>
Billion pounds, live weight						
1940	16.7	16.9	2.2	4.1	113.9	41.0
1945	19.1	18.9	1.8	4.8	117.7	55.5
1950	22.5	21.1	1.4	6.2	115.5	57.7
1955	27.7	19.7	1.6	7.7	124.4	60.4
1960	29.4	19.7	1.7	10.4	124.4	61.2
1961	30.1	20.3	1.6	10.1	125.9	62.9
1962	31.7	20.6	1.5	10.6	126.5	62.5

<sup>1</sup> Chickens, broilers and turkeys. <sup>2</sup> Billions.

MORE FEED FED TO LIVESTOCK

Year (beginning October 1)	Feed grains <sup>1</sup>	Byproduct feeds	Seeds	Milk <sup>2</sup>	All con- centrates <sup>3</sup>	All har- vested forage
Million tons						
1940	88.4	14.4	2.0	1.9	106.7	171.7
1945	110.8	16.5	1.4	1.5	130.2	175.9
1950	103.0	21.1	0.7	1.3	126.1	178.9
1955	101.0	23.1	0.5	1.0	125.6	210.7
1960	124.7	27.3	0.4	0.7	153.1	221.6
1961	126.0	28.2	0.3	0.7	155.2	224.8
1962	129.1	28.6	0.3	0.7	158.7	230.3

<sup>1</sup> Includes corn hogged-off. <sup>2</sup> Dry weight equivalent of whole and skim milk, butter-milk and whey. <sup>3</sup> Includes grains, byproduct feeds, seeds and milk whether fed as such or in mixed feeds.

Better Processing Makes Alfalfa Meal A Practical Roughage in Livestock Diet

Alfalfa was well known as a feed back in Roman times. In the U.S., the use of alfalfa as meal processed by sun-curing commenced during the early 1900s. With development of the first dehydration system in 1910, meal was processed on a limited scale from dehydrated alfalfa.

It took another 20 years to get production of dehydrated alfalfa meal on a commercial basis. But production gathered momentum and dehydrated meal now accounts for 85 per cent of all alfalfa processed. Output during October-September 1962-63 totaled 1,340 thousand tons, 6 per cent more than in that period of 1961-62.

Basically a roughage feed ingredient, alfalfa meal is utilized by all classes of livestock and

poultry. Its relatively high fiber content limits the quantity that can be used in poultry feeds. The meal is sold in a number of processed forms, usually with a protein content of 17 per cent and added units of vitamin A.

The west north central and western regions of the U.S. together account for about 80 per cent of total output. (2)

• • • • •

**Who's Who on the Farm**

Who is a farm resident? To be counted in the farm population, you must live in a rural area on a place of 10 acres or more and sell at least \$50 worth of farm products a year.

The definition, put into effect by the Bureau of the Census in 1960, also includes those on farms under 10 acres if they sell at least \$250 worth of agricultural goods in a year. (3)

• • • • •

Feed Grain Supplies for 1963-64 Slightly Larger than Year Earlier

The total supply of feed grains and other concentrates at the beginning of the 1963-64 marketing year is estimated at 248 million tons. This is about 2 million tons more than the 1962-63 supply. The carryover into 1963-64 was 62.5 million tons, 9.3 million less than in 1961-62. But this was offset by increased feed grain production and prospective gains in byproduct feeds and wheat for livestock feed.

Farmers likely will feed more concentrates during the current feeding year. The number of grain-consuming livestock on farms is expected to increase slightly to 174 million animal units in 1963-64. The total quantity of feed grains and other concentrates fed to livestock in 1963-64 probably will be a little larger than the 154 million tons fed last year. Utilization at this level would exceed production and result in a small reduction in carryover by the close of 1963-64.

The expected quantity of all concentrates fed during the current year will include about 32 million tons of byproduct feeds and wheat in addition to about 126 million tons of feed grains. The total supply of feed grains for 1963-64 was estimated in November at 216 million tons, nearly 1 million more than last year. The 1963 crop was about 10 million tons larger, compared with a year ago when production was just over 143 million tons.

Feed grain prices in 1963-64 probably will average near last year's levels. The loan rate on the 1963 crop is lower, down from \$1.20 to \$1.07 per bushel for corn, but with production below requirements, prices are expected to average higher than the loan.

During the 1962-63 feeding year, grain prices advanced more than usual. The average was 4 per cent above 1961-62. (4)



**RESULTS AT A GLANCE:** Each year since 1961, the Congress has enacted feed grain legislation. In 1961, farmers were permitted to reduce their corn and sorghum acreage at least 20 per cent in return for acreage diversion payments and price supports. Similar provisions were in effect

in 1962 and 1963 with barley added. As a result, stocks of feed grains were reduced about 13 million tons in 1961-62 and 9 million in 1962-63. Some further reduction in stocks is expected in 1963-64. The legislation has been extended for the 1964 and 1965 crops. (5)

Item	Unit	1961 Program			1962 Program				1963 Program <sup>1</sup>			
		Corn	Grain sorghum	Total	Corn	Grain sorghum	Barley	Total	Corn	Grain sorghum	Barley	Total
U.S. base acreage <sup>2</sup>	Mil. A	87.3	20.5	107.8	86.4	20.9	16.1	123.4	86.4	20.4	16.5	123.3
Base acreage, participating farms	Mil. A	48.0	15.6	63.6	47.8	14.5	5.8	68.1	51.0	16.0	9.5	76.5
Percentage of U.S. base	Pct.	55.0	75.9	59.0	55.3	69.3	36.3	55.2	59.1	78.6	57.3	62.0
U.S. acreage planted	Mil. A	66.8	14.3	81.1	66.0	15.0	14.7	95.7	69.8	16.7	14.0	100.5
Acreage plant, participating farms	Mil. A	24.9	7.3	32.2	23.4	6.9	2.4	32.7	<sup>3</sup>	<sup>3</sup>	<sup>3</sup>	<sup>3</sup>
Percentage of U.S.	Pct.	37.9	51.0	40.2	35.5	46.0	16.3	34.1	<sup>3</sup>	<sup>3</sup>	<sup>3</sup>	<sup>3</sup>
U.S. acreage diverted	Mil. A	19.1	6.1	25.2	20.3	5.5	2.4	28.2	17.7	4.9 <sup>4</sup>	3.1 <sup>4</sup>	25.7 <sup>4</sup>
Percentage of U.S. base	Pct.	21.9	29.8	23.4	23.5	26.3	15.1	22.9	20.5	24.0	18.8	20.8
Percentage of base, participating farms	Pct.	39.8	39.1	39.6	42.5	37.9	41.4	41.4	34.7	30.6	32.6	33.6
Diversion payments earned	Mil. Dol.	645	137	782	684	124	36	844	—	—	—	472 <sup>5</sup>
CCC average sales price	Dol.	1.02	1.82	—	1.08 <sup>6</sup>	1.81 <sup>6</sup>	.84 <sup>6</sup>	—				
		Per bu.	Per cwt.		Per bu.	Per cwt.	Per bu.					

<sup>1</sup> Preliminary, 1963 acreage planted based on July 1 indications.

<sup>2</sup> Based on 1959 and 1960 averages, excluding acreage in Soil Bank.

<sup>3</sup> Not yet available. <sup>4</sup> Acreage enrolled for diversion. <sup>5</sup> Estimated

on basis of signup. Not broken down by crops. Farmers will also earn price support payments in 1963, estimated at about \$400 million. <sup>6</sup> Preliminary.

## Michigan Farmers Take Smaller Cut Of Lake States' Dairy Production

Michigan, Minnesota and Wisconsin make up the Lake States region—long the producer of over a fourth of the nation's milk supply. Since 1950, particularly, the Lake States as a group have been increasing their output at a rate faster than that recorded by U.S. production. Michigan, however, hasn't remained in step.

While U.S. milk production in 1962 was up 4.2 per cent over the 1950-60 average, the gain for Michigan was only 3.1 per cent.

The manufacturing-grade market in Michigan is more and more dominated by surplus milk from grade A producers. And quality standards for manufacturing milk are rising. Because the higher quality standards increase costs, many grade B dairymen are drop-

ping out. The grade A producers are taking a larger slice of production without a corresponding gain in total output for the state. (6)

## Consumer Desire for Better Pecans Brought Changes in Tree Varieties

Not so long ago the housewife who wanted to add nuts to her Christmas fruit cake got out the nutcracker, picks and bowl and went to work on a big bag of pecans in the cellar. This was hard work and housewives wondered why pecans couldn't be grown with thinner shells and larger kernels.

Researchers began work to develop pecans with these desirable qualities. Soon improved tree varieties were being propagated and sold by nurseries throughout the South. Now housewives had

pecans that were easier to shell than the wild or seedling varieties.

But few of the new improved varieties were more flavorful than the seedling pecans. One of the few was the Schley variety, and its popularity is causing a shift in the location of the pecan industry.

The pecan nursery industry has long been centered in the Southeast, where a number of improved varieties grow well. However, the Schley pecan, susceptible to scab and other diseases prevalent in the humid Southeast, grows best under the semiarid conditions of the Southwest. As a result, the pecan industry in the Southwest has grown rapidly in the last few years.

In an effort to hold their business, pecan nurseries and growers in the Southeast are trying to develop more disease resistant varieties. (7)



## New Industry Sparks Economic Life Of Rural Farm Community in Iowa

One way to pump economic power into a rural community is to build a new factory there—a wiremill, a foundry or most any industry. That's what happened in Maquoketa, in Jackson County, Iowa. According to an ERS study, Maquoketa was a typical farm community center in 1950, depending heavily on surrounding farms and nearby smaller towns for its income.

In 1950, only 12 per cent of the labor force was employed in manufacturing — mainly in a small factory that has since left the area. The rest of the labor force consisted chiefly of farmers engaged in raising feed and livestock and the usual component of workers in retail trade and services. Their net incomes were slightly lower than the state average.

In late 1950, an out-of-state company established a small engine plant in the town. The company planned to triple its production. To do this, the management transferred supervisors from the home plant, but hired most of the workers from around Maquoketa.

Soon after the plant opened, the company was the largest employer in the area. Employment rose first to a thousand workers and by 1955 reached nearly two thousand. By 1958, the factory employed about 90 per cent of all manufacturing workers in the county.

Because employment in the factory usually reached a low during the summer, expanded during the fall, hit its peak in the winter and slackened in the spring, farmers were able to work in the factory while holding on to their farms.

During 1957, one out of every 25 farmers in the area worked in the plant. A few of the wives did too, and even a good number of sons and daughters.

Most of the farmers who

worked in the plant were skilled laborers. One-third were machine operators. Just about all the farm families who had anyone working in the plant increased their net incomes. The median increase was about \$3000. This income helps the community, too. (8)

## ERS Study Finds Out Who Owns Land In the Seven Southeastern States

Land may be the farmer's major asset, but you would never know it from his concern over who inherits his property.

A 1960 survey of the seven southeastern states revealed that only 13 per cent of the landowners in the area had made out wills. A little more than a third of the owners who were 75 years old or older during the survey had spelled out the inheritance of their estates. No land owner under 25 had done so.

Individuals were far and away the dominant owners of the land in the area. A scant 2 per cent of the owners were corporations. However, the corporations owned 18 per cent of the total rural land area.

Though the number of owners classified as public agencies were less than one per cent of the total, they owned 5 per cent of the land area.

A little more than half of the individual owners of rural land were active farmers, whether full-time, part-time or semiretired. Full-time farmers alone accounted for 29 per cent of the individual owners.

One-fifth of the individual owners held only 2 per cent of all the rural land. Another one-fifth of the owners held two-thirds of the land.

Over four-fifths of the rural land owned by individuals was held free of debt. The outstanding debt on the remaining individually owned land amounted to about one-third of the value of the indebted land. (9)

## Farmland Taxes in the Urban Fringe Ignite Many Differences of Opinion

For the past 20 years, farmland taxes have been rising more than 5 per cent a year. The rise has been fastest in farm areas near growing cities.

As suburbs encroach on farmlands, the farmer's taxes often increase as his land becomes more valuable. But the big trouble is: the higher value may not be realized for years, the taxes are payable today. Meanwhile, the operator probably isn't making any more money from his farm.

Many farmers regard the higher taxes that go with the advancing urban fringe as just another burden on their already meager incomes. Often they are forced to sell their land to an investor who can afford the heavy holding costs involved while property is "ripening." The farmer who manages to hold on to his land throughout this period is the fortunate exception.

Various solutions to the problem are being tried. In Maryland and Florida, for example, assessors rate farmland at its agricultural value alone, ignoring any value the land might have for urban development. Connecticut recently passed a law giving local communities power to designate farmland, forests and open spaces as conservation lands. Owners then pay lower taxes because the land is assessed solely on its undeveloped value and not on its potential.

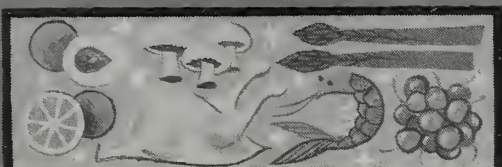
Proponents of special tax treatment for farmland argue that this policy will protect the farmer from an unfair tax burden, and that it will encourage preservation of open spaces in urban fringe areas.

Critics say low taxes on farmland tend to erode the tax structure and undermine the local property tax, which supplies about nine-tenths of all local revenue. (10)





## FREEZE-DRIED ASSETS



*New  
food processing method  
has fine future,  
but firms will find  
capital evaporating fast  
when they buy costly  
freeze-dry machinery*

A new industry that packs very little weight will be packing almost a quarter of a billion dollars worth by 1970.

This is the outlook for the freeze-dry industry, now only a \$2 to \$5 million fledgling.

Freeze-drying is the process that removes up to 90 per cent of the moisture in frozen foods, leaving them almost weightless.

Because they're light and don't need refrigeration, freeze-dry foods are easier and cheaper to store and ship than fresh or frozen foods. Shelf life is as long as two years. Just add water or other liquid and they're ready to cook or eat as is.

These characteristics make freeze-dry foods especially good for use as emergency military rations or camping-out meals. But their greatest potential use is as partial ingredients for food to be further processed, that is, as meat cubes and mushrooms in dried soup mixes, as strawberries boxed with breakfast cereals, as shrimp in creole or chow mein.

Before entering the field, however, prospective freeze-dryers need to know what the probable processing costs will run, and what the potential market will be in the next few years.

A new ERS study points out that:

—Freeze-drying is an added process, using frozen foods as its raw materials. With this added cost the finished product is not now able to compete favorably on the basis of price with the same food frozen.

—Many freeze-dried products don't compare favorably on the basis of taste and flavor either. A recent taste test of 28 foods rated only three freeze-dried products superior to their canned or frozen counterparts, 15 equal and 10 inferior. (See July issue, *The Farm INDEX*.) But where convenience rather than cost or flavor is most needed, freeze-dried foods have a fast growing market potential.

—Some foods can't be successfully freeze-dried either because the cost is too high for the low quality of the fresh product or because of the loss in flavor and appearance. In the first group are cheaper cuts of meats and lower priced fruits and vegetables. In the second group are tomatoes, melons, lettuce and similar commodities that lose their physical structure when freeze-dried.

—Best bets for freeze-drying are higher quality meats—especially poultry and turkey, shrimp

and other shell fish—almost all berries, the more expensive vegetables such as asparagus and mushrooms and such specialized items as spices, instant coffee and instant tea.

—Freeze-drying equipment is expensive, a minimum of \$300,000 for a full size commercial plant. Plants of the future will take investments of up to \$2 million. Freeze-drying is clearly not a do-it-at-home operation (see tables next page).

—Processing costs now vary anywhere from four to 17 cents per pound of water removed. By 1967 these costs should level off at about four to five cents per pound. But this means plants will have to be large enough to remove 30 to 40 tons of water a day, the equivalent of 33 to 60 tons of raw product. Today the largest plants can remove only about four tons of water a day. Also, plants will need to process a variety of foods to extend the season to about 250 days and work more than one eight-hour shift a day. A shorter drying cycle would help considerably in lowering costs. At present it takes 10 to 12 hours to dry food but the industry outlook is for six- to eight-hour cycles in the next year or two. (11)



### FREEZE-DRY EQUIPMENT COSTS FAR MORE THAN PLANT

Plant size in tons per day <sup>1</sup>	Investment			
	Freeze-dry equipment	Other equipment	Buildings	Total
	Dollars			
4	300,000	4,575	43,200	347,775
8	580,000	6,200	72,900	659,100
16	1,040,000	7,900	133,893	1,181,793
32	1,840,000	9,000	232,694	2,081,694

### FREEZE-DRY COSTS DROP WITH LARGER PLANTS, LONGER DAY AND EXTENDED SEASON

Plant size in tons per day <sup>1</sup>	Cost per pound of water removed			
	Chicken (56% moisture)	Beef (60% moisture)	Shrimp (70% moisture)	Mushrooms (90% moisture)
	Cents			
4	8 <sup>2</sup>	7.9	7.9	6.6
8	6.7	6.7	6.1	5.3
16	5.4	5.1	4.8	4.3
32	4.4	4.3	3.8	3.4

<sup>1</sup> Measured in tons of water removed per 24-hour day, based on eight-hour drying cycle and 250-day operating season. <sup>2</sup> Equivalent to 4.3 cents a pound of frozen chicken and 9.4 cents a pound of dried chicken.

## New Study Shows Grocers Get Full House Tour, More Sales When They Spot Drawing Card Items Throughout Store

Food retailers are facing increasingly stiff competition for sales.

In the last 10 years, the average supermarket has doubled its size and increased the number of items carried by one-half. And while the total number of food stores has dropped, the number of big ones has been on the rise.

They have multiplied so fast, in fact, that they have outstripped population growth. Today, there are about half as many families, on the average, for every supermarket as there were 10 years ago. Sales per store just aren't keeping up with the rising costs of running the market.

To maintain high volume food

sales, supermarkets have to pay more attention to such widely different factors as packaging, the placement of grocery gondolas within the store and the spacing of power items which draw customers.

In studies of shopping patterns in supermarkets, ERS economists have found that one of the best ways to increase sales is to induce customers to travel the entire selling area.

A 1960-62 study surveyed stores with short gondolas and many cross aisles—a modified layout. They were compared with sales results in stores with long gondolas which guide the shopper—a conventional store layout.

Shoppers spent about the same amount of time in both types of stores. Yet faced with the modified layout, customers shopped only one-third of the area. And they spent an average of \$8.56 per visit.

In stores with conventional layouts, the customers shopped more than half the selling area and spent \$11.40 per visit.

Only shoppers with carts were included in the survey figure.

Frozen food cabinets can also pose problems for the manager. When the cabinet is accessible from two sides, it must be stocked with great care. In a number of stores almost two-thirds of the customers investigated one side of the case, but only 35 per cent saw the other side. Why? Because both frozen juices and vegetables were on the same side.

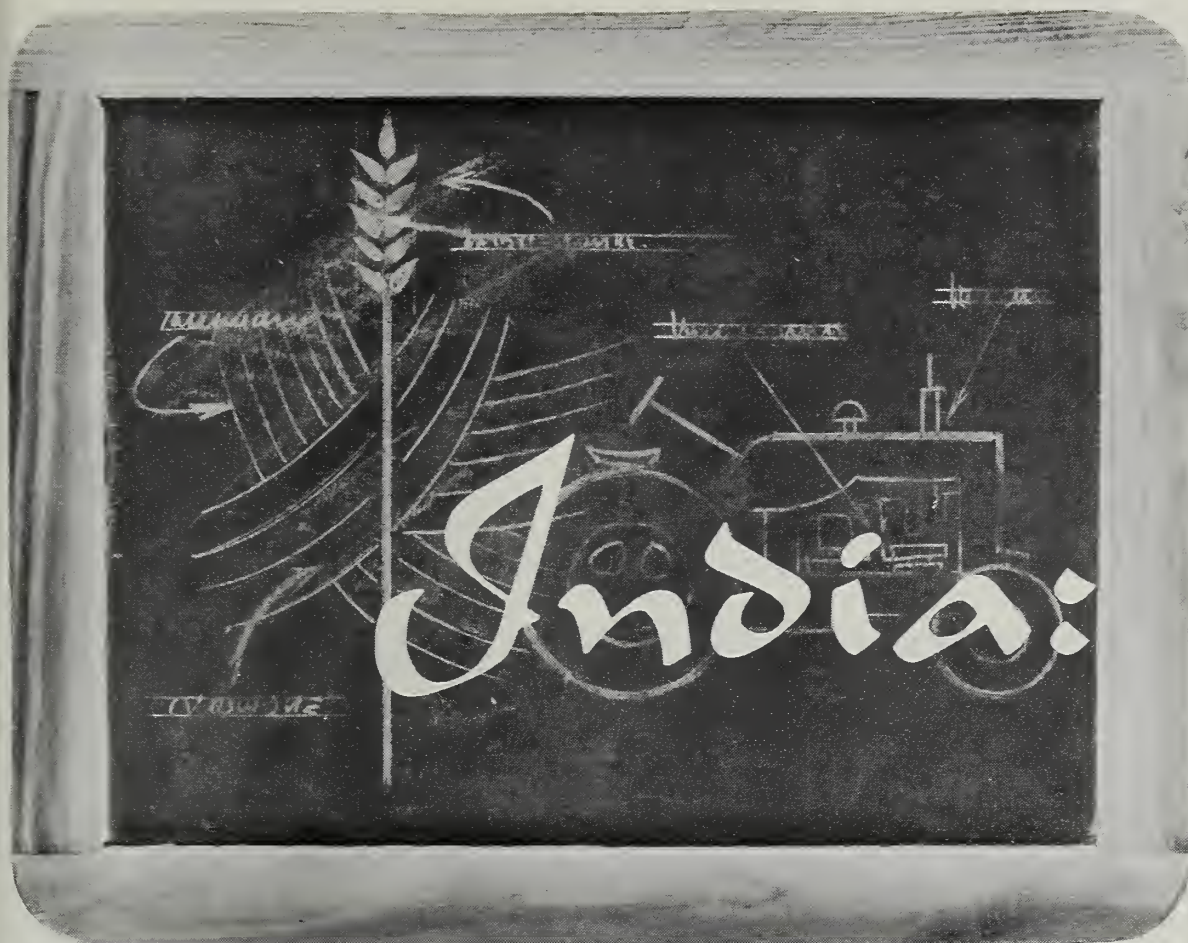
By placing these two power items on opposite sides of the case, the retailer not only helps his sales but exposes the customer to a wider selection of products.

The use of specials is another merchandising practice that could be improved. A special sale item, placed at the end of gondolas, tends to produce less in the way of impulse purchases than when set into display forms on the gondolas. With the power item drawing customers to the center of the gondola, the amount of exposure for other products is increased.

To make the trick work, the retailer has to know what his power items are. One survey showed that 35 per cent of all shoppers bought paper products, 30 per cent bought cookies and crackers, 27 per cent bought soap and 25 per cent bought coffee. The retailer has to exercise some skill in arranging these major food departments so that he gets the most out of their drawing power without creating traffic jams in the aisles.

Also, numerous tests show sales for produce, especially for fruit, increase when displayed in packages. (12)





## PROGRESS IS KNOWING HOW

It's 8,000 miles from Urbana to Uttar Pradesh. You can get from the University of Illinois campus to the Agricultural University of Uttar Pradesh in about a day and a half, allowing for changes of plane in Chicago and New York and giving you time for the 150-mile drive up from New Delhi.

But no one knows how long it will take for the Indian version of a land grant college to bring 20th century agriculture to the villages of India.

The university, dedicated by Prime Minister Jawaharlal Nehru on November 17, 1960, was built from academic blueprints designed by the University of Illinois and with grants from U.S. foreign aid. Illinois has stayed with the project ever since. Urbana has supplied dairy scientists, veterinarians, agronomists, agricultural engineers, farm management specialists, student training experts, extension leaders, and consultants for the registrar's office in an attempt to turn this campus, rising in the foothills of

the Himalayas, into a thriving copy of its Illinois model.

U.P. Agricultural University, along with the other agricultural universities associated with American schools, forms a major part of the government's long range plan for updating its agriculture. It will be no easy job.

In June of this year, the first 90 students graduated in Uttar Pradesh. They faced problems that no young graduate in Illinois dreamed of.

When they left U.P. University's 16,000-acre farm, the graduates faced the problems of 300 million farmers and their families, most of whom work plots of less than five acres. From classes where they experimented with the latest machinery, they returned to fields where the wheat is harvested with one-hand sickles, threshed by oxen trampling the grain and winnowed by hand as it has been for thousands of years.

Despite notable progress in food production since the beginning of the Five-Year Plans for Economic

Development in April 1951, farm output has not been able to outpace the growth in population. And since 1961, per capita food production has even slipped a little.

Per capita income in India increased by 17 per cent in the 10 years between 1951 and 1961, though it is still only \$70. The demand for food increased swiftly, too. In recent years, India has had to import between 1.4 and 5.1 million metric tons of food grains every year.

India has already invested a total of \$21.2 billion in national development projects during the first and second five-year plans (1951 to 1961), with agriculture receiving between 20 and 30 per cent of the total. The third five-year plan calls for an investment equal to the combined total of the two previous periods. The government hopes to increase farm output by making a simultaneous assault on all the problems of agriculture. Projects range from irrigation systems and land reform



to more machinery, more generous credit rates to farmers, updated marketing facilities and a greater emphasis on agricultural research, education and extension teaching.

To do the job, India relies heavily on foreign assistance. Between 1950 and 1961, the nation received a total of \$6.3 billion (equivalent) in aid; the U.S. contributed 61 per cent of the total.

Far and away the most important projects, aided in part by U.S. funds, are the river valley development systems.

With such vast complexes of dams and waterworks as the Damodar Valley project, the Bhakra Nangal river valley system, and the Hirakud Dam project, the government hopes to irrigate an additional 25 million acres in five years.

Among other targets for improvement are:

*Milk production.* India is one of the world's largest milk producers, simply because of the vast numbers of cows and buffaloes on the land. But output per animal is pitifully low. With the help of such notable projects as the Aarey Milk Colony near Bombay, where individual owners have grouped their animals in a state-run production and marketing enterprise, the Ministry of Agriculture hopes to increase milk production sharply in the next few years.

*Improved seed.* By 1960, Delhi had established 25-acre seed farms in each of 3,100 community development blocks in the states. The villages in turn produce their own seed from stock provided by the farms. Now in the works are plans for 10 large mechanized seed farms ranging from 6,000 to 9,000 acres. Once in operation the farms will supply the improved seed for the entire country.

*Land reform.* Delhi has been trying to put a halt to the centuries-old habit of splitting farm holdings into fractional units with each successive generation. Most

Indian states are empowered to consolidate holdings through their land laws. Many of the communities have encouraged the development of cooperative village farming societies. By 1959 there were 3,600 such groups registered.

*Rents.* The government has moved to clamp ceilings on rents. Several states have fixed the rent at no more than a fourth of the crop, compared with the one-half of the crop landlords have asked.

*Credit.* State sponsored farm

credit societies have collided with the private money lending system and entrenched custom. Eight out of every 10 loans to farmers are provided by private lenders, including relatives. This despite the fact that private sources may charge as much as 70 per cent interest while credit societies set a maximum of 12.5 per cent. Even so, the undercapitalized credit societies advanced some \$250 million in 1958-59, compared with \$100 million just three years earlier. (13)

## INDIA'S OWN TOP FOOD CROPS ALSO TOP FOOD IMPORT LIST

Indian farmers plant about 115 million acres to wheat and rice every year, nearly 1.6 times the acreage in the U.S. Yet with yields in India only half the U.S. average, and with a population more than twice as big as ours, India has imported on the average between 3 and 4 million metric tons of wheat and rice yearly to meet the nation's food requirements.

The situation for wheat and rice is also true of cotton, the other major agricultural import. It helps explain why India is in the unusual position of having to import large quantities of the commodities that are high on the list of domestic production.

If Delhi could succeed in raising yields for these crops, the government would be able to reduce or perhaps even eliminate one drain on the country's scarce foreign exchange.

India's combined agricultural imports have averaged \$600 million a year since 1956. Some \$260 million of the total, chiefly wheat, cotton, and rice, has come from the U.S. About 80 per cent of our shipments represent U.S. assistance.

India's agricultural exports just about match its imports, running to more than half a billion dollars a year. Farm exports bring in some 40 per cent of the country's foreign exchange earnings.

Tea is the top export commodity, accounting for over half the total. Most of it goes to the United Kingdom which takes about half of all agricultural exports from India. The U.S. is the second biggest overseas market for Indian farm output.

Other important export commodities are cashew nuts, cotton, peanut and castor oils and pepper. Most of them bring in from \$20 to \$40 million a year.

Coffee, sugar and feedstuffs, relative newcomers to India's list of exports, are growing fast in importance. The three commodities together earned only \$1.5 million in 1951, but by 1961 their value on the foreign market ran to nearly \$90 million. (14)

## Pakistan Coordinates Scattered Plans To Up Output, Plug Marketing Holes

Pakistan, mid-way in its second five-year plan for economic development has set its sights on an impressive 15 per cent increase in agricultural output. The government hopes to accomplish this goal through its recently established Agricultural Development Corporations.

But though progress has been decreed by Karachi, the call to economic reform is as yet largely unheard in the tradition-bound



villages of the nation, where farming is little changed from the days of Alexander's march across the land.

Increasing per capita farm output depends largely on the willingness of farmers to accept strange new ways of doing things. With his family almost entirely dependent for food on what he can grow, the average farmer is afraid to take a chance, even though in the long run he will produce more and better crops.

The corporations will also try to replace some of the missing links in the marketing system. In the process, the agencies will try to bring greater order into the previously somewhat disjointed government programs. The government has, for example, managed to produce more hybrid corn seed than is generally used. But with inadequate distribution, processing and storing facilities, much of the available seed either never gets to the farmer or spoils before it is sown. Farmers in one part of the country often find themselves cut off from supplies of fertilizer which may be lying in storage a few hundred miles away.

Even with the best of conditions, Pakistani farmers find themselves running just to keep from slipping behind in the production of food. In 1961 output was a near record, but food output per person was 26 per cent below the 1935-39 level. And the population of 97 million persons is expected to double in the next three decades.

It goes without saying that the nation has had to rely heavily on foreign aid. Almost half of the actual investment in the first five-year plan was made up of grants and loans from foreign governments. The current or second five-year plan relies as heavily on foreign support.

The U.S. supplies 70 per cent of all Pakistan's agricultural imports, mostly under Title 1 of Public Law 480.(15)

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THE RURAL FRINGE AND URBAN EXPANSION, A CASE STUDY OF PRINCE GEORGES AND MONTGOMERY COUNTIES, MARYLAND. Robert R. Stansberry, Jr., Economic and Statistical Analysis Division. AER-43.

In 1960, suburbanization processes were studied in two Maryland counties adjacent to the national capital to evaluate the social and economic impact of rapid suburbanization on the rural fringe. Here are some of the findings of the study: Although one fringe family in 10 is living on a farm, more than half the household heads have a rural background. Fringe residents are oriented toward the rural, rather than the urban, side of living. All walks of life are represented

among fringe residents: poor and rich, professional workers and unskilled laborers. They agree on only one thing: the coming suburb will "take something away" from their community.

COSTS OF ELECTRIC POWER AND FUEL FOR DRIERS IN COTTON GINS, ARKANSAS AND MISSOURI. Shelby H. Holder, Marketing Economics Division, and Oliver L. McCaskill, U.S. Cotton Ginning Research Laboratory. ERS-138.

Power is one of the most important variable costs in a ginning operation. This item alone costs the nation's ginners millions of dollars each year. The purpose of this study was to determine power costs for specified types of gins and the factors affecting these costs, and consumption of fuel for driers and its cost per bale ginned. Data on quantity and cost of electricity used were collected from 90 all-electric gins located in Arkansas and Missouri. Data on quantity and cost of fuel for driers were collected from 49 of these gins.

TRUCK CROP PRODUCTION PRACTICES ... MONTEREY COUNTY, CALIFORNIA—LABOR, POWER, AND MATERIALS BY OPERATION. Earle E.

Gavett, Farm Production Economics Division. ERS-129.

California leads the nation in the production of truck crops. Fewer than 6 per cent of the state's vegetable farms were located in Monterey County, but they accounted for over 14 per cent of the harvested acreage of vegetables. Information in this report was obtained from 121 producers in Monterey County concerning labor requirements, production practices, and costs involved in the production of truck crops for fresh market processing.

THE AGRICULTURAL SITUATION AND CROP PROSPECTS IN COMMUNIST CHINA, 1963. Marion R. Larson, Regional Analysis Division, FAER-10.

Prospects for the 1963 harvest in Mainland China are little if any better than in 1962. Production of summer harvested grain crops was less than last year's poor harvest. The outlook for intermediate and late rice is only fair, and the output of miscellaneous grains probably will not offset early grain losses. Per capita food availability is expected to change little from last year, despite stepped-up efforts in government procurement programs.

SUMMARY AND EVALUATION OF THE PHILIPPINES: LONG-TERM PROJECTION OF SUPPLY OF AND DEMAND FOR SELECTED AGRICULTURAL PRODUCTS WITH IMPLICATIONS FOR U.S. EXPORTS. James F. Keefer, Regional Analysis Division. ERS-Foreign-58.

Substantial growth and shifts are projected for the Philippine economy. The population is projected to increase at an annual rate of over 3 per cent and there

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Movement—Vital Factors to Your Products Sales (S), N. Havas, Merchandising Research on Package Evaluation and Store Layout (S), and N. Havas, Customer Instore Shopping Behavior and Store Layout (S); 13. W. Hall, Agricultural Economy of India (M); 14. S. I. Richards, Trends in India's Agricultural Trade (M); 15. Far East Branch, Regional Analysis Division (SM); 16. Farm Population Branch, Economic and Statistical Analysis Division, Advance Report on the Hired Farm Working Force of 1962, ERS-141 (P).

*Speech (S); published report (P); manuscript in process (M); special material (SM).*

**UNITED STATES GOVERNMENT PRINTING OFFICE**

DIVISION OF PUBLIC DOCUMENTS, WASHINGTON, D.C. 20402

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is to be a shift to the urban areas. The growth and growth rate of the general economy will have an important impact upon import requirements and import capability.

**ECONOMIC ASPECTS OF PECAN PRODUCTION AND MARKETING:** ARKANSAS, FLORIDA, GEORGIA, MISSISSIPPI, NEW MEXICO, AND SOUTH CAROLINA. Robert C. McElroy, Farm Production Economics Division, and Jules V. Powell, Marketing Economics Division. AER-41.

Pecans are an important source of income to growers throughout the southern tier of states from North Carolina to New Mexico. This report presents production and marketing data obtained from 576 pecan growers who owned 370,000 pecan trees, or 13 per cent of the trees listed in the 1959 Census of Agriculture for the six states in the study. The most common cultural practice in pecan orchards was discing. Growers fertilized 78 per cent of the survey acreage. They reported that 95 per cent of their pecans were sold to dealers.

**USE AND PROMOTION OF DAIRY PRODUCTS IN PUBLIC EATING PLACES.** Wendell E. Clement, Marketing Economics Division. MRR-626.

Market expansion for dairy products is becoming more critical as the gap between produc-

tion and consumption continues. For more than a decade, per capita consumption of dairy products on a milk equivalent basis has trended downward, declining from 768 pounds in 1947 to 640 pounds in 1962. This bulletin gives the results of a survey of public eating places in and around Hartford, Conn., and Indianapolis, Ind., relative to merchandising and promotional practices used for dairy products. It indicates that much improvement can be made in the merchandising of dairy products in restaurants.

**FARM POPULATION ESTIMATES FOR 1910-62.** Vera J. Banks, Calvin L. Beale and Gladys K. Bowles,

Economic and Statistical Analysis Division. ERS-130.

The farm population of the United States has been declining in most years since 1916 when it reached an estimated peak of 32.5 million, making up about a third of the total population. In 1962, farm people numbered 14.3 million, about one-thirteenth of the total. This bulletin brings together the newest estimates, revisions of data for certain years, and out-of-print estimates for earlier years. It shows all available annual estimates on the size, geographic distribution, net migration, and natural increase of the farm population.

## A MILLION STUDENTS WORKED AS FARM HANDS IN 1962

More than 3.6 million hired hands worked on farms in 1962—that's about the same as in 1961. They earned, on the average, \$896 in cash wages from farm and non-farm work, almost \$100 more than the year before. However, many of the workers were housewives, students or other casual employees who spent less than 25 days on the farm.

Excluding the casual workers, the average hired hand earned \$6.80 a day, 25 cents more than in 1961.

For the third straight year the number of migratory workers declined, shrinking from 395,000 to 380,000, or 11 per cent of all farm

wage workers in 1962. On the average, migrant farm hands worked on farms for about 116 days; nonmigrants averaged 137 days.

Male hired hands whose chief work was on the farm and who were household heads earned an average of \$2,100 in 1962, nearly all of it from farm work.

Almost a million farm wage workers were full-time students. Generally, they worked during vacation and returned to school for the next semester.

It's a trend that has been in progress since World War II, underscoring the greater reliance on short-term seasonal workers.(16)





